Air Cooled Low Temperature Screw Chillers
Model SSCD-LT

Highlighted options:
- Explosion-proof design
- Integral Pumps/tanks
- Copper condenser fins
- Stainless steel shell & tube evaporator
- Stainless steel electrical enclosure
- Low Ambient to -20°F
The series of Low Temperature Screw Compressor Air Cooled Package Chillers were developed by a group of industry engineers, each of them with over 15 years of experience in the design, manufacture, installation, and service of such units. We are fully committed to innovate, design, new and unique technologies, while delivering and supporting high-quality, reliable, and durable products. The units covered by the manual are Family of Chiller products, designed, engineered, and manufactured by [Manufacturer Name] to meet the varying requirements of the customers. Each model is designed to provide the best possible performance, reliability, and durability. As a manufacturer and supplier of innovative solutions in the various worldwide refrigeration and air conditioning applications, we are committed to provide our customers with the best possible solutions to meet their needs, ensuring satisfaction and reliability in every aspect of our operation.


**POWER AND CONTROL PANEL**

Each chiller is packaged with a power and control panel which is ready to accept rated 3 phase 60 Hz electrical supply from a remote mounted isolator.

- Low Temp Chiller unit design gas feature the following:
  - Installed Compression/Liquid injection
  - Welded steel refrigerant piping from Compressor discharge to Oil separator and Evaporator outlet to Compressor suction
  - Installed 3000 GPM threaded-inlet fittings
  - ASME Liquid Receiver(s)
  - Oil Circuit including:
    - Coalescing Oil Separator
    - Air Cooled Oil Cooler with hydrophilic fins & TEFC motor
    - AMOT Temperature control valve
    - Oil Flow Switch
    - Inline Oil Filter
  - Rigid conduit with minimum 24" final sealable terminations
  - Installed low point condensate drains
  - 216 Stainless steel control tubing with 0.069” tubing wall thickness with Swagelok/Parker fittings

**Smart Advance 2**

The SmartAdvance2 is a rugged microprocessor based controller designed specifically for the hostile environment of industrial applications. It is designed with the most critical process and has customers in mind. The SmartAdvance2 provides flexibility with set points and control options that can be selected prior to commissioning a system or when the unit is live and functioning. Displays, alarms and other interfaces are accomplished in a clear and simple language that informs the user as to the status of the controller.

The SmartAdvance2 consists of a master microcontroller along with a keypad and display. Complementing the controller is a variety of expansion boards that allow for system expansion to a maximum of 48 inputs and 48 outputs. Communication to these units occur at 38,400 baud over the I/O part which is dedicated for this purpose.

Two other communication ports (RS-485 and Ethernet) are available on the SmartAdvance2. The RS-485 port allows the user to interactively communicate with the SMART Advance 2 via a Windows based connection software or for monitoring purposes only, to a BMS (Building Management System) running Modbus RTU or Modbus TCP. The Ethernet port allows the user to interactively communicate with the SmartAdvance2 via a Windows based connection software or, for monitoring purposes only, to a BMS running BACnet IP or Modbus IP.

For LoRaWAN or BACnet MSIP communication, an external adapter is required.

**OPTIONAL ACCESSORIES**

- Heat Recovery / Desuperheaters
  This can be factory supplied and installed to get free hot water up to as high as 131°F.

Other Optional Accessories

- Coated or uncoated copper fins coils in lieu of pre-coated aluminum fins coils.
- Suction and discharge pressure gauges.
- Water flow switch to be shipped loose.
- Rubber-to-steel isolator to be shipped loose.
- Condenser handrail system per OSHA 1910.23
- Condenser ladder access with cage per OSHA 1910.27/1910.1053
- Explosion-proof design

Integrated Pump/Tank Station

Process pump package can be integrated with or without a tank station. These tanks are offered in all 304SS material and fully insulated with high-quality foam insulation. Pumps are available up to 5 HP to 304SS and in other constructions up to 60HP. This section will be integral to the chiller skid and within a framed enclosure with rain shield.

**LOW TEMPERATURE AIR COOLED PACKAGE SCREW CHILLERS**

**GENERAL DESCRIPTION**

These Low Temperature Air Cooled Screw Chillers are designed and manufactured to ensure reliable performance and to provide process cooling for the most severe industrial applications. Our air-cooled screw chillers can be suitably piped to provide chilled glycol or cold brine solution all the way down to -30°F.

Each air-cooled screw chiller consists of an outdoor weatherproof casing constructed from heavy gauge galvanized steel coated with oven-baked epoxy polyester paint, one to three screw compressors; a large surface area Copper tubes-Aluminum fins condenser coil for efficient heat transfer; a shell and tube type evaporator; two or multiple axial propeller fans with direct drive induction motors; factory packaged and pre-wired power and control panel; and a microprocessor based controller for capacity steps modulation and safety protections.

The air-cooled screw chillers are suitable for outdoor installation with free and unobstructed condenser fans air discharge.

**APPLICATIONS SERVED**

- **Industrial Process Cooling**
  Although the term industrial lends one to think tough & rugged, industrial process applications can actually be quite sensitive. Many of these applications need tight temperature control to maintain their quality of product. We, at ASHP, understand these needs and realize that your process is your livelihood. Accurate temperature control and 24/7 reliability are our top priorities. This list shows some common process cooling applications:
    - Plastic processing
    - Injection mold cooling
    - Extrusion cooling
    - Laser cooling
    - Welding machine cooling
    - Metal die-casting cooling
    - Metal plating / anodizing cooling
    - Semiconductor wafer testing cooling
    - Dry cleaning cooling
    - Oil cooling
    - Process chemical process cooling
    - Natural gas dehydration cooling
**MECHANICAL SPECIFICATIONS AND FEATURES**

**RANGE**
The model SCD-LT is available in standard sizes from 30 to 360 HP with HFC refrigerant.

**SCREW COMPRESSOR**
- Separate refrigerant circuit for each compressor
- Semi-hermetic, horizontal screw type
- Two-pole hermetic motor
- Suction gas cooled motor
- Integral lubrication system using pressure differential
- Cast iron housing
- Infinite variable slide valve unloading
- Integral oil separator
- Compressor oil sump heaters

**SHELL & TUBE EVAPORATOR**
The adoption of a dedicated, high efficiency shell & tube heat exchanger allows us to increase cooling capacities by values close to 10%. This performance improvement can be alternatively translated into raising the evaporation temperature and in turn, optimizing the EER of the cooling system in combination with HFC refrigerants.
- Pitched evaporator to help promote oil return (Crucial on low temperature units)
- 0.035" tube wall thickness, 304 stainless steel smooth bore tubes
- Minimum 4" projection on all line penetrations to extend beyond frost area
- The bolt system is made of steel alloys or stainless steel depending on working conditions and temperatures, while gaskets are made of an asbestos free compound.
- Includes full pressure containment equipment documentation
- Tube sheets are constructed of 304 stainless steel
- Welded thermowells included
- Options for direct cooling of process fluids including D-Limonene, methanol, glycol, styrene, propylene oxide

**CONDENSER COIL**
- Constructed from staggered rows of inner ridged copper tubes, mechanically expanded into die-formed aluminum fins for positive bonding and efficient heat rejection
- The pre-coated non-ferrous Aluminum fins improve corrosion resistance and maintain the fin surface for efficient heat of rejection
- The condenser coil is pressure tested up to 450psig with dry nitrogen under water for leaks
- Optional copper fin condenser coil

**AXIAL PROPELLER FANS**
- The patented and unique designed anti-static PPG axial propellers are selected to deliver high condenser air flow rates, with ultra-low noise levels and low motor power consumption
- The 3 phase, totally enclosed air over (TEAO), high starting torque, direct drive condenser fan motor runs at maximum speed of 1140 rpm. 750F motors also available
- All condenser fan motors are provided with either internal line break motor protection or external mounted overload protector, and suitable for outdoor installations with minimum IP54 protection
- Optional variable fan speed control or fan cycling in response to condensing head pressure, during low ambient condition

**REFRIGERATION SPECIALTIES**
- Thermal expansion valve(s)
- Sight glass with moisture indicator(s)
- Liquid line solenoid valve(s)
- Liquid line shut off valve(s)
- Removable core filter/drier(s)
- Charging and gauge connections
- Compressor discharge check valve(s) and stop valve(s)
- Compressor suction stop valve(s)
- High pressure relief valve(s)
- Refrigerant charge
- Oil charge